

AMENDMENTS TO THE CLAIMS

1. (Previously presented) A gravity fed water purification cartridge, comprising:
  - an inlet head cap configured to be coupled to a prefilter, wherein said inlet head cap provides an inlet for untreated water;
  - a ring member in fluid flow communication with the inlet head cap, wherein said ring member is configured to evenly distribute the untreated water to a purification medium;
  - a purifier vessel in fluid flow communication with the ring member, wherein said purifier vessel contains a polymer having pendant hydantoin groups to treat said untreated water and provide treated water;
  - a bulkhead coupled to the inlet head cap and configured to separate the untreated water from treated water;
  - a dwell chamber coupled to the bulkhead, wherein said dwell chamber provides residence time for treatment of the treated water with residual halogen, and wherein the dwell chamber is in fluid flow communication with the purifier vessel; and
  - an outer skin coupled to the bulkhead and enclosing the dwell chamber, wherein said outer skin and dwell chamber provide an annular space therebetween, and wherein said outer skin is configured to discharge said treated water.
2. (Previously presented) The cartridge of Claim 1, wherein the polymer is capable of binding and releasing a halogen.
3. (Original) The cartridge of Claim 1, wherein the inlet head cap compresses the ring member against the purifier vessel, and the purifier vessel is compressed against the bulkhead to provide a sealed space.

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4. (Previously presented) The cartridge of Claim 1, wherein the purifier vessel has a capacity to hold about 10 to about 50 grams of the polymer.

5. (Previously presented) The cartridge of Claim 1, wherein the polymer is at least one of a halogenated polystyrene hydantoin, a polystyrene hydantoin, a hydantoinylated siloxane, or a halogenated hydantoinylated siloxane.

6. (Original) The cartridge of Claim 1, wherein the purifier vessel comprises a plurality of pegs configured to transfer a compressive force induced by the inlet head cap to a flange on the purifier vessel.

7. (Original) The cartridge of Claim 1, wherein the purifier vessel is seated on a compressible gasket of about 20 to about 80 shore A durometer.

8. (Original) The cartridge of Claim 7, wherein the gasket is non-leaching and suitable for drinking water applications.

9. (Original) The cartridge of Claim 1, wherein a gasket is located at the coupling of the inlet head cap to the bulkhead.

10. (Original) The cartridge of Claim 9, wherein the gasket is substantially incompressible.

11. (Original) The cartridge of Claim 1, wherein the dwell chamber provides a residence time of at least about 2 to about 5 minutes.

12. (Original) The cartridge of Claim 1, wherein the annular space is configured to hold an additional water treatment medium.

13. (Previously presented) The cartridge of Claim 12, wherein the additional treatment medium includes at least one of activated carbon, mineralization materials, or heavy metal removal agents.

14. (Original) The cartridge of Claim 1, wherein the purifier vessel, dwell chamber, and outer skin are comprised of chlorine resistant materials.

15. (Previously presented) The cartridge of Claim 1, wherein the polymer is configured in a bed having an aspect ratio of at least 3.

16. (Currently amended) A water purification cartridge, comprising:  
an inlet member configured to provide untreated water in a first axial direction;  
a ring member in fluid flow communication with said inlet member and adjacent to said inlet member, wherein said ring member has a base that is ~~elevated above and substantially covers the opening of a purifier vessel so that untreated water enters the purifier vessel from the sides of the opening of the purifier vessel below the base surrounded by a sidewall with a plurality of passages around the periphery of the sidewall;~~  
a purifier vessel adjacent to said ring member, wherein said purifier vessel is configured to treat said untreated water to provide treated water, ~~wherein said purifier vessel is in fluid flow communication with said ring member the purifier vessel comprising supports spaced around the circumference of the opening of the purifier vessel to define a plurality of passages that allows untreated water to flow therethrough and into the purifier vessel, wherein the base of the ring member is elevated above and substantially covers the opening of the purifier vessel so that untreated water enters the purifier vessel from the sides of the opening of the purifier vessel below the base of the ring member;~~

a bulkhead adjacent to said purifier vessel, wherein said bulkhead is configured to separate untreated water from treated water;

a dwell chamber in fluid flow communication with said purifier vessel and exterior to said purifier vessel, wherein said dwell chamber is configured to provide treated water flow in a second axial direction opposite to the first axial direction.

17. (Previously presented) The cartridge of Claim 16, wherein the purifier vessel contains at least one of a halogenated polystyrene hydantoin, a polystyrene hydantoin, a hydantoinylated siloxane, or a halogenated hydantoinylated siloxane.

18. (Original) The cartridge of Claim 17, wherein the halogen is chlorine or bromine.

19. (Original) The cartridge of Claim 16, wherein the ring member distributes untreated water in a radial direction.

20. (Withdrawn) A gravity fed water purification system, comprising:

a prefilter interior to an untreated water container;

a water purification cartridge in fluid flow communication with the prefilter, wherein said water purification cartridge is interior to a treated water container, wherein the untreated water container and the treated water container are integrally coupled to prevent the entry of untreated water into the treated water container, and wherein said cartridge contains a polymer having pendant hydantoin groups capable of bonding and releasing a halogen.

21. (Withdrawn) The cartridge of Claim 20, wherein the water purification cartridge comprises at least one of a halogenated polystyrene hydantoin, a polystyrene hydantoin, a hydantoinylated siloxane, or a halogenated hydantoinylated siloxane.

22. (Withdrawn) The cartridge of Claim 20, wherein the halogen is chlorine or bromine.

23. (Currently amended) A water purification cartridge, comprising:  
a purifier vessel to treat untreated water containing a packed bed filled with beads made from a polymer selected from at least one of a halogenated polystyrene hydantoin, or halogenated hydantoinyl siloxane, said purifier vessel comprising a water inlet; and  
a dwell chamber in fluid flow communication with said purifier vessel and enclosed within an outer skin, after said purifier vessel to provide residence time, wherein treated water can contact residual halogen produced from the halogenated polystyrene hydantoin or halogenated hydantoinylated siloxane, wherein the residual halogen concentration is less than 1 ppm, said dwell chamber comprising a water outlet at an elevation positioned below the water inlet of the purifier vessel, wherein water flows from said water inlet and out through said water outlet under the force of gravity.

24. (Original) The cartridge of Claim 23, wherein the halogen is chlorine or bromine.

25. (Previously presented) The cartridge of Claim 16, further comprising a polymer having pendant hydantoin groups, wherein said polymer provides a residual halogen concentration of less than 1 ppm.

26. (Previously presented) The cartridge of Claim 16, further comprising a polymer having pendant hydantoin groups, wherein said polymer provides a residual halogen concentration of 0.1 ppm to 0.5 ppm.

27. (Canceled)

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28. (Previously presented) The cartridge of Claim 23, wherein the residual halogen concentration is 0.1 to 0.5 ppm.

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